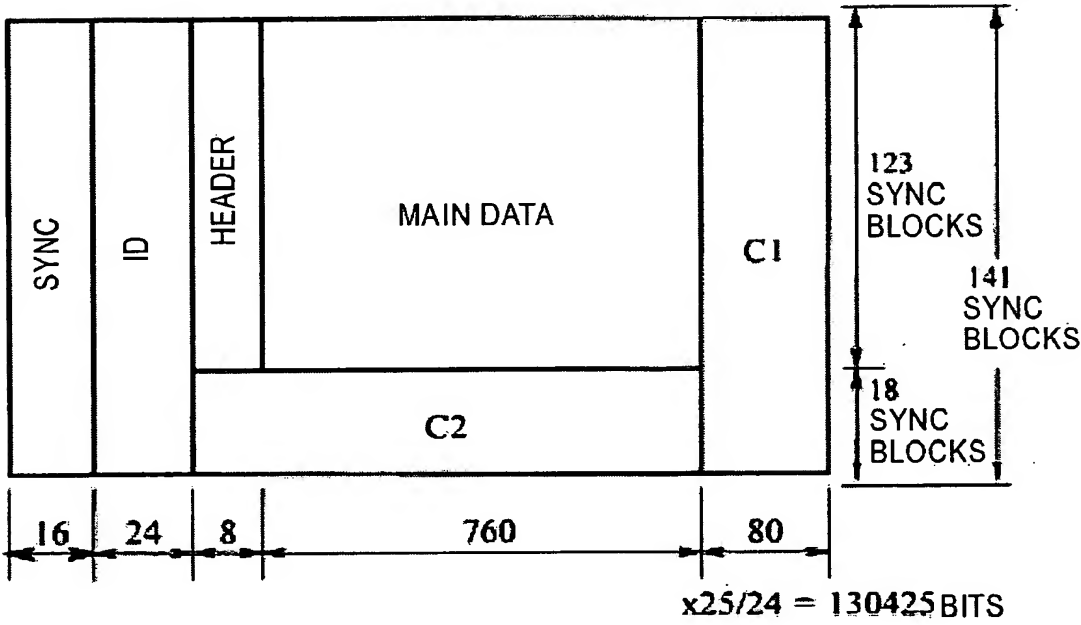


FIG. 3

RUN PATTERN	CODEWORD	
	MSB	LSB
PATTERN A	0001110001110000011100011	
PATTERN B	111000111000111100011100	

FIG. 4



3 / 32

FIG. 5

	MSB	LSB
SYNC PATTERN M0	0 1 0 1 1 1 1 1 1 1 1 1 1 0 0 0 0	
SYNC PATTERN M1	1 0 1 0 0 0 0 0 0 0 0 0 0 1 1 1 1	

FIG. 6

ID0		ID1	ID2
b7-5	b4 - 0	MSB	MSB
FORMAT-TYPE	TRACK PAIR NUMBER (0-31)	SYNC BLOCK NO.	OVERWRITE PROTECT

FIG. 7

b7	b6	b5	b4	b3	b2	b1	b0
<div>DATA TYPE</div>							
0	NULL						
1	AUX						
2	PES-VIDEO						
3	PES-AUDIO						
4	TS-1H						
5	TS-2H						
6	SEARCH						
7	RESERVED						

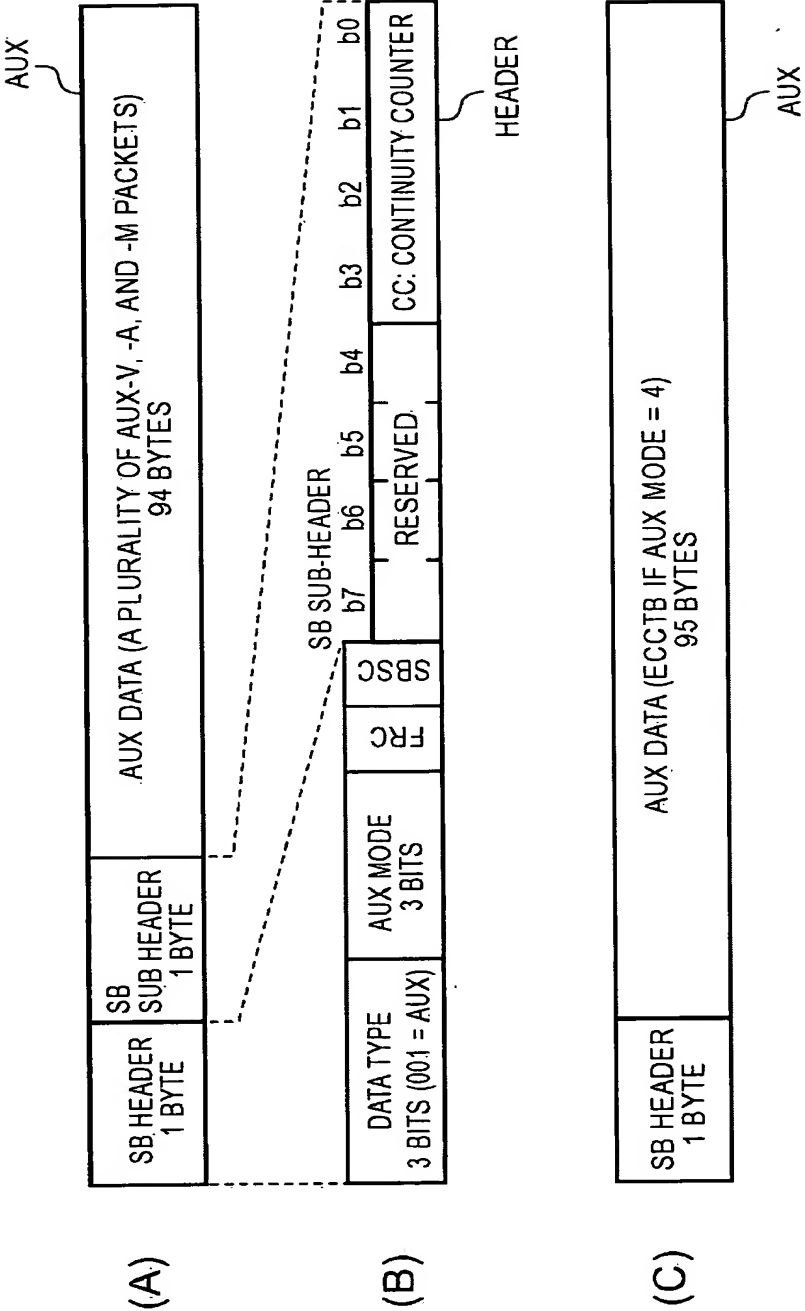
SEARCH SPEED	
0	RESERVED
1	RESERVED
2	SEARCH x8
3	RESERVED
4	SEARCH x24
5-7	RESERVED

AUX MODE	b4-2	b1
0	AUX-V	FRC
1	AUX-A	RESERVED
2	PES-PSI 1	RESERVED
3	PES-PSI 2	RESERVED
4	AUX-SYSTEM (ECCTB)	DF
5	AUX-M	FRC
6,7	RESERVED	RESERVED

FIG. 8

MAIN (BEFORE 24-25 MODULATION)					(Kbps)	(NO. OF SBs)	(%)
SYNC	ID	SB- HEADER	AUX	501	C1	2.2	1.6%
			V-DATA	25,021	9.0%	109.9	77.9%
			A-DATA	421		1.85	1.3%
			S-DATA	2,073		9.1	6.5%
		C2				18	12.8%
2 BYTES	3 BYTES	1 BYTE	95 BYTES		10 BYTES	141	100.0%

FIG. 9



7/32

FIG. 10

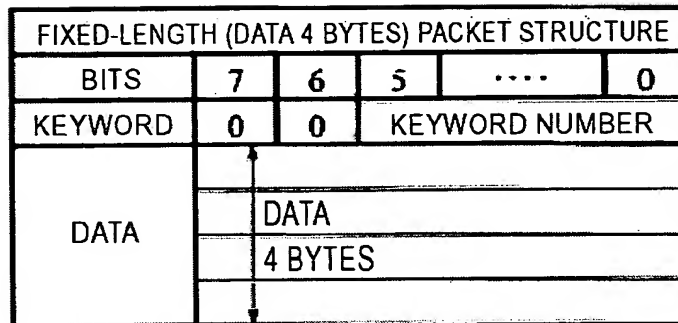


FIG. 11

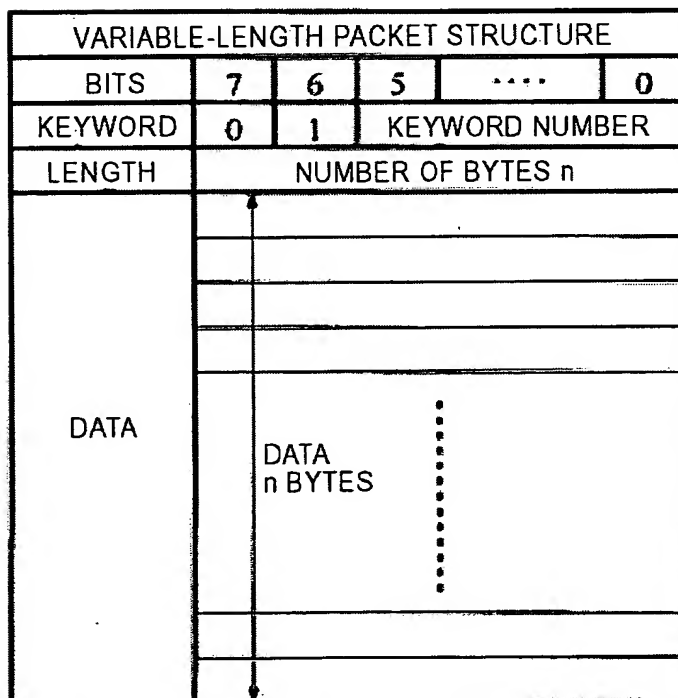


FIG. 12

4-BYTE FIXED LENGTH			
KEY-WORD	AUX CATEGORY	DESCRIPTION	REMARKS
0	SUB	TTC	FOR SUBCODE 5-BYTE 1 PACKET
1	SUB	BINARY GROUP	
2	SUB	PART NO.	
3	SUB	CHAPTER START	
4	SUB	ATNF (ATN+FLG)	
5	SUB	REC DATE	
6	SUB	REC TIME	
7	SUB	ETN	
8	RES.	RESERVED	
:	RES.	RESERVED	
62	RES.	RESERVED	USED IF THERE IS NO VALID DATA
63	RES.	NO-INFORMATION PACK	

FIG. 13

VARIABLE-DATA-LENGTH PACKET

KEY-WORD	AUX CATEGORY	DESCRIPTION	REMARKS
64	AUX-A	AUD-FRAM	PES-AUD & EDIT INFO.
65	AUX-A	RESERVED	
66	AUX-A	RESERVED	
67	AUX-A	RESERVED	
68	AUX-V	VID-FRAM	PES-VIDEO & EDIT INFO.
69	AUX-V	RESERVED	
70	AUX-V	RESERVED	
71	AUX-V	RESERVED	
72	AUX-V	UMID	64-BYTE DATA MAX 18 DV COMPATIBLE 5-BYTE PACKETS
73	AUX-V	DV PACKET	
74	AUX-V	RESERVED	
75	AUX-V	RESERVED	
76	AUX-V	RESERVED	
77	AUX-V	ASCII CHAR MESSAGE	
78	AUX-V	SHIFT JIS MESSAGE	
79	AUX-V	BINARY	
80	SYS.	ECCTB	EDIT INFO./SUBCODE DATA
81	SYS.	RESERVED	
82	SYS.	RESERVED	
83	SYS.	RESERVED	
84	RES.	RESERVED	
:	RES.	RESERVED	
119	RES.	RESERVED	
120	AUX-M	RESERVED	
121	AUX-M		
122	AUX-M		
123	AUX-M		
:	AUX-M		
126	AUX-M		
127	AUX-N	NULL	NULL PACKET

10 / 32

FIG. 14

DATA #	DESCRIPTION		REMARKS
0.	AUDIO FRAME PACKET KEYWORD	1	KEYWORD = 64
1.	LENGTH	1	92
2.	VTR MODE	1	OPERATION MODE FOR TS OUTPUT
3.	ATNF (FLE+ATN+FLG)	5	SAME CONTENTS AS VID-FRAME IN COMBINATION
8.	EXTENDED TRACK NUMBER	3	SAME CONTENTS AS VID-FRAME IN COMBINATION
11.	TTC	5	SAME CONTENTS AS VID-FRAME IN COMBINATION
16.			
16.	DATE/TIME ORIGINAL	10	IN THE ORDER OF DATE(5B) + TIME(5B) KW 1B+
26.	DATE/TIME MAIN	8	IN THE ORDER OF DATE(4B) + TIME(4B)
34.	GENERATION NUMBER	1	INCLUDES 2 BITS FOR COPYRIGHT
35.			
35.	STATUS INFO 1 (WITH HISTORY)	1	CONNECTION POINT INCLUDING EDIT: 0, 1 TO 71 COUNTUP
36.	STATUS INFO 2 (WITHOUT HISTORY)	1	REC START POINT IN EDIT MODE: 0, 1 TO 71 COUNTUP
37.	AUDIO MODE		10 (TOTAL BYTE)
37.	AUDIO FRAME SIZE	2	NO. OF AAU SAMPLES (ONLY LPCM HAS MEANING)
39.	SAMPLING FREQ.	0.375	
39.	QUANTIZATION	0.625	(5 BITS) VALUE = 0 TO 31 BITS
40.	AUDIO CHANNEL MODE	0.5	
40.	AUDIO COMP MODE	0.5	
41.	BIT-RATE INDEX	0.5	
41.	RESERVED	0.5	
42.	AUDIO SOURCE CONTROL	1	SUBSTANTIALLY SAME DEFINITION AS DV
43.			
43.	RESERVED	4	
47.	DECODING REFERENCE INFO.		11 (TOTAL BYTE)
47.	AUDIO FRAME NO. (FIRST)	3	INTEGRATED VALUE OF GOAF
50.	NO. OF AUDIO FRAMES	1	GOAF: NO. OF AAUs RECORDED IN SUCCESSION
51.	PTS	5	
56.	AUDIO PTS COMPENSATION	2	
58.			
58.	RESERVED (AUD-FRAME)	3	
94.			
	TOTAL	94	

FIG. 15

DATA #	DESCRIPTION	NO. OF BYTES	REMARKS
0.0	VIDEO FRAME PACKET KEYWORD	1	KEYWORD = 68
1.0	LENGTH	1	92
2.0	VTR MODE	1	OPERATION MODE FOR TS OUTPUT
3.0	ATNF (FLE+ATN+FLG)	5	INFORMATION ON ETN (EFN) POSITION CORRESPONDING TO DTS TIME
8.0	ETN 8 (EXTENDED TRACK NUMBER)	3	EFN CORRESPONDING TO TTC AT DTS TIME
11.0	TTC	5	TTC AT DTS TIME
16.0	BINARY GROUP	5	ONE IN CORRESPONDING FRAME WHEN TTC IS TC
21.0			
21.0	DATE/TIME ORIGINAL	10	IN THE ORDER OF DATE(5B) + TIME(5B) KW 1B
31.0	DATE/TIME MAIN	8	IN THE ORDER OF DATE(4B) + TIME(4B)
39.0	GENERATION NUMBER	1	INCLUDES 2 BITS FOR COPYRIGHT
40.0			
40.0	STATUS INFO 1 (WITH HISTORY)	1	CONNECTION POINT INCLUDING EDIT: 0, 1 TO 7f COUNTUP
41.0	STATUS INFO 2 (WITHOUT HISTORY)	1	REC START POINT IN EDIT MODE: 0, 1 TO 7f COUNT UP
42.0	SEARCH DATA MODE	1	SEARCH REC PATTERN
43.0			
43.0	VIDEO PACK INFO.		11
43.0	PACK FRAME NUMBER	1	NO. OF FRAMES IN PACK, FF: NO INFO
44.0	Picture_Number_from_I-pic	1	NO. OF FRAMES FROM IMMEDIATELY PRECEDING I-pic
45.0	1ST FRAME HEADER		
45.0	DATA-H	1	
46.0	VBV DELAY	2	
48.0	HEADER SIZE	1	FOR CORRECTING DIFFERENCE IN VBV DELAY HEADER SIZE
49.0	DTS	5	
54.0	VIDEO MODE	16	
70.0			
70.0	EXTENDED DV PACK ENABLE	1	DV PACKET ENABLE b0 TO b2: 1 TO 3 ENABLE: 1
71.0	EXTENDED DV PACK	15	CLOSED CAPTION 4 BYTES + 1KW/FRAME X3
86.0			
86.0	RESERVED (FOR VID-FRAME)	8	
94.0			
	TOTAL	94	

12/32

FIG. 16

SEARCH DATA (SEARCH REC PATTEN)
b0: x4 OPTION
b1: x8 MAIN DATA
b2: x8 HELPER DATA
b3: x16 OPTION
b4: x24 OPTION
b5: x32 OPTION
b6-7: RESERVED

FIG. 17

DATA-H	b3-0	
0: RESERVED	8: NO PICTURE	STUFFING PACK
1: I-PICTURE	9: NO EDITABLE	
2: P-PICTURE	a: RESERVED	
3: B-PICTURE	b: RESERVED	A-END
4: COPY PICTURE	c: RESERVED	REC-END
5: V-END	d: RESERVED	AUD
6: RESERVED	e: RESERVED	AUX
7: NO INFO.	f: RESERVED	

13 / 32

FIG. 18

DESCRIPTION	NO. OF BYTES	REMARKS
ECCTB PACKET HEADER	1	DATA = 80
LENGTH (PACKET DATA)	1	DATA = 93
SUBCODE INFORMATION		SAME CONTENTS AS SUBCODE OF 1ST TRACK OF ECC
ATNF (FLE+ATN+FLG)	5	RECORDS VALUE OF 1ST TRACK OF ECC
EXTEND TRACK NUMBER	3	DITTO
TTC	5	SAME AS SUBCODE OF 1ST TRACK OF ECC
BINARY GROUP	5	WRITTEN TO THE SAME SUBCODE AS TTC
DATE/TIME ORIGINAL	10	DATE/TIME OF ORIGINAL REMAINS UNCHANGED AFTER COPYING
DATE/TIME MAIN	8	(USED FOR DISPLAY)
GENERATION NUMBER	1	INCREMENTS +1 EACH TIME LAST MODIFY IS UPDATED
EDITABLE HEADER MAP		25
Picture_Number_from_I_pic	1	NO. OF FRAMES FROM IMMEDIATELY PRECEDING I-PIC
1ST EDITABLE HEADER		
DATA-H	1	PES-VIDEO
VBV DELAY	2	
HEADER SIZE	1	FOR CORRECTING DIFFERENCE IN VBV DELAY HEADER SIZE
DTS	5	
CONTINUITY COUNTER	1	b7-4: AUDIO, b3-0: VIDEO
POSITION (SB)	1	AUD-FRAME PACKET (EDIT AUX POSITION)
POSITION (TRACK)	1	
2ND EDITABLE HEADER		
DATA-H	1	PES VIDEO
VBV DELAY	2	
HEADER SIZE	1	FOR CORRECTING DIFFERENCE IN VBV DELAY HEADER SIZE
DTS	5	
CONTINUITY COUNTER	1	b7-4: AUDIO, b3-0: VIDEO
POSITION (SB)	1	AUDIO AUX (2ND EDIT FIRST DATA POSITION)
POSITION (TRACK)	1	
EDIT STATUS ECC	1	0 AT EDIT POINT; COUNTS FOR EACH ECC UP TO 7f
SEARCH DATA MODE	1	SEARCH REC PATTERN
SEARCH PCS	1	INDICATES SEARCH DATA RECORD INFORMATION
SEARCH DATA BLOCK NUMBER	1	x8 SPEED DATA DIVISION NOS.(1 TO 9) 00, FF: NO INFO.
VIDEO MODE	16	SAME CONTENTS AS IN VID-FRAME AUDIO MODE
AUDIO MODE	10	SAME CONTENTS AS IN AUD-FRAME VIDEO MODE
RESERVED	1	
TOTAL	95	

14 / 32

FIG. 19

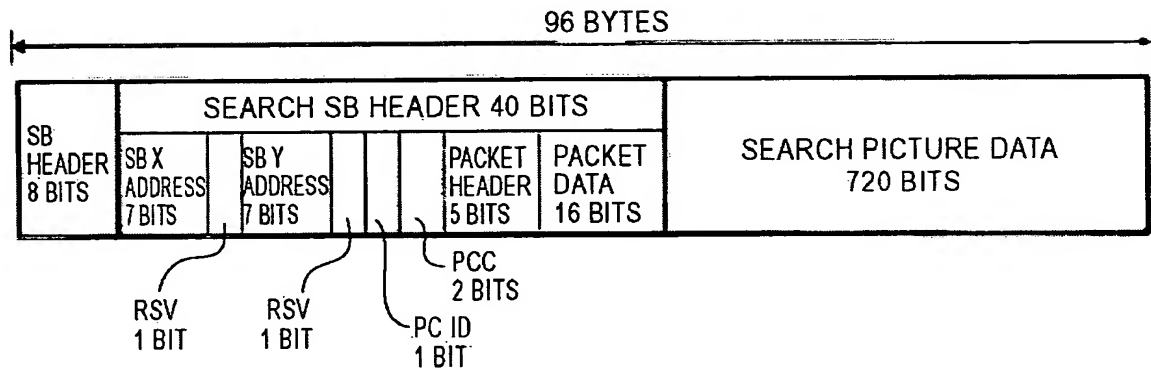


FIG. 20

PACKET HEADER	DESCRIPTION	L/H	REMARKS	
0	SH	L	SEARCH HEADER (IMAGE INFORMATION)	
1	SH	H	SEARCH HEADER (IMAGE INFORMATION)	
2	TTC	L	DESCRIPTION OF SUBCODE	
3	TTC	H		
4	REC TIME	L		
5	REC TIME	H		
6	REC DATE	L		
7	REC DATE	H		
8	ATN+FLG	L		
9	ATN+FLG	H		
10	ETN	L		
11	ETN	H		
12	BINARY GP	L		
13	BINARY GP	H		
14	PART NO.	L	(FOR RECORDED TAPE)	
15	PART NO.	H	(FOR RECORDED TAPE)	
16	CHAPTER START	L	(FOR RECORDED TAPE)	
17	CHAPTER START	H	(FOR RECORDED TAPE)	
16~31	RESERVED		RESERVED	

FOR DISPLAY

FOR SEARCH POSITIONAL INFORMATION

15/32

FIG. 21

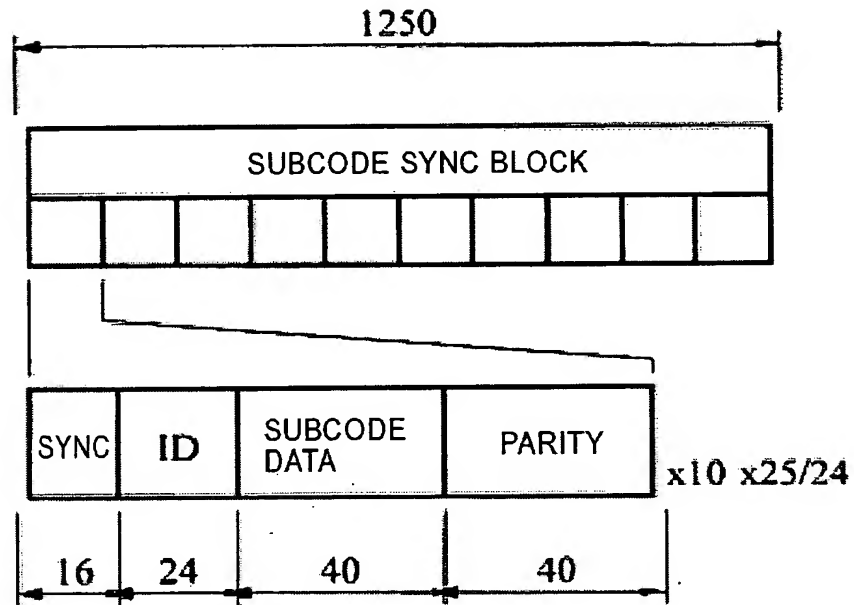


FIG. 22

	MSB	LSB
SYNC PATTERN S0	1 0 0 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0	
SYNC PATTERN S1	0 1 1 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1	

FIG. 23

SB No.	ID0		ID1		ID2	
	MSB	LSB	MSB	LSB	MSB	LSB
0	F_TYPE	TRACK PAIR NUMBER	RESERVED	SB NUMBER	OVERWRITE PROTECT	
1	F_TYPE	TRACK PAIR NUMBER	RESERVED	SB NUMBER	OVERWRITE PROTECT	
2	F_TYPE	TRACK PAIR NUMBER	RESERVED	SB NUMBER	OVERWRITE PROTECT	
3	F_TYPE	TRACK PAIR NUMBER	RESERVED	SB NUMBER	OVERWRITE PROTECT	
4	F_TYPE	TRACK PAIR NUMBER	RESERVED	SB NUMBER	OVERWRITE PROTECT	
5	F_TYPE	TRACK PAIR NUMBER	RESERVED	SB NUMBER	OVERWRITE PROTECT	
6	F_TYPE	TRACK PAIR NUMBER	RESERVED	SB NUMBER	OVERWRITE PROTECT	
7	F_TYPE	TRACK PAIR NUMBER	RESERVED	SB NUMBER	OVERWRITE PROTECT	
8	F_TYPE	TRACK PAIR NUMBER	RESERVED	SB NUMBER	OVERWRITE PROTECT	
9	F_TYPE	TRACK PAIR NUMBER	RESERVED	SB NUMBER	OVERWRITE PROTECT	

17 / 32

18/32

FIG. 26

FLE: FLAFIG EXTENSION			
BIT	NAME	DESCRIPTION OF DATA	DETAILED DATA
7	SF1	PRESENCE OF x8 SEARCH HELPER	0: HELPER IS PRESENT, 1: HELPER IS ABSENT
6	SF2	PRESENCE OF x24 SEARCH DATA	0: DATA IS PRESENT, 1: DATA IS ABSENT
5	SPH	x24 SEARCH PHASE (0 - 2)	COUNTER OF 3 CYCLES, 0, 1, AND 2, REMAINDER FROM DIVIDING THE QUOTIENT, WHICH IS OBTAINED BY DIVIDING ETN BY 16, FURTHER BY 3
4			
3	EPO	EDITABLE PICTURE OFFSET (0 - 15)	PHASE DIFFERENCE FROM MAIN DATA CHANGES FOR EACH FRAME 15=NO INFO
2			
1			
0			

FIG. 27

FLG			
BIT	NAME	DESCRIPTION OF DATA	DETAILED DATA
7	I	INDEX ID	SEARCH POINT MARK (CORRESPONDING TO DV)
6	-	RESERVED	
5	P	PP ID	STILL IMAGE SEARCH MARK (CORRESPONDING TO DV)
4	-	RESERVED	
3	EF	REC END ECC FLAG	GENERATED USING ALTAIR
2	PF	PICTURE TYPE FLAG (0 - 7)	GENERATED USING ALTAIR 1=I-PIC, 2=B-PIC, 3=P-PIC, 4=C-PIC, 5=V-END, 7=NO INFO
1			
0			

19 / 32

FIG. 28

BYTE POS. NO.	ETE: EXTENDED TRACK NUMBER							
	7	6	5	4	3	2	1	0
D0	0	0	7					
D1	LSB							
D2	ETN 24 BITS							
D3	MSB							
D4	RESERVED							

FIG. 29

	TITLE 3: TIME CODE : TTC OR TC							
	7	6	5	4	3	2	1	0
PC0	0	0	0	1	0	0	1	1
PC1	S2/BF	S1	F + POSITION		FRAMES - POSITION			
PC2	S3	SEC + POSITION			SECONDS - POSITION			
PC3	S4	MIN + POSITION			MINUTES - POSITION			
PC4	S6	S5	H + POSITION		HOURS - POSITION			

FIG. 30

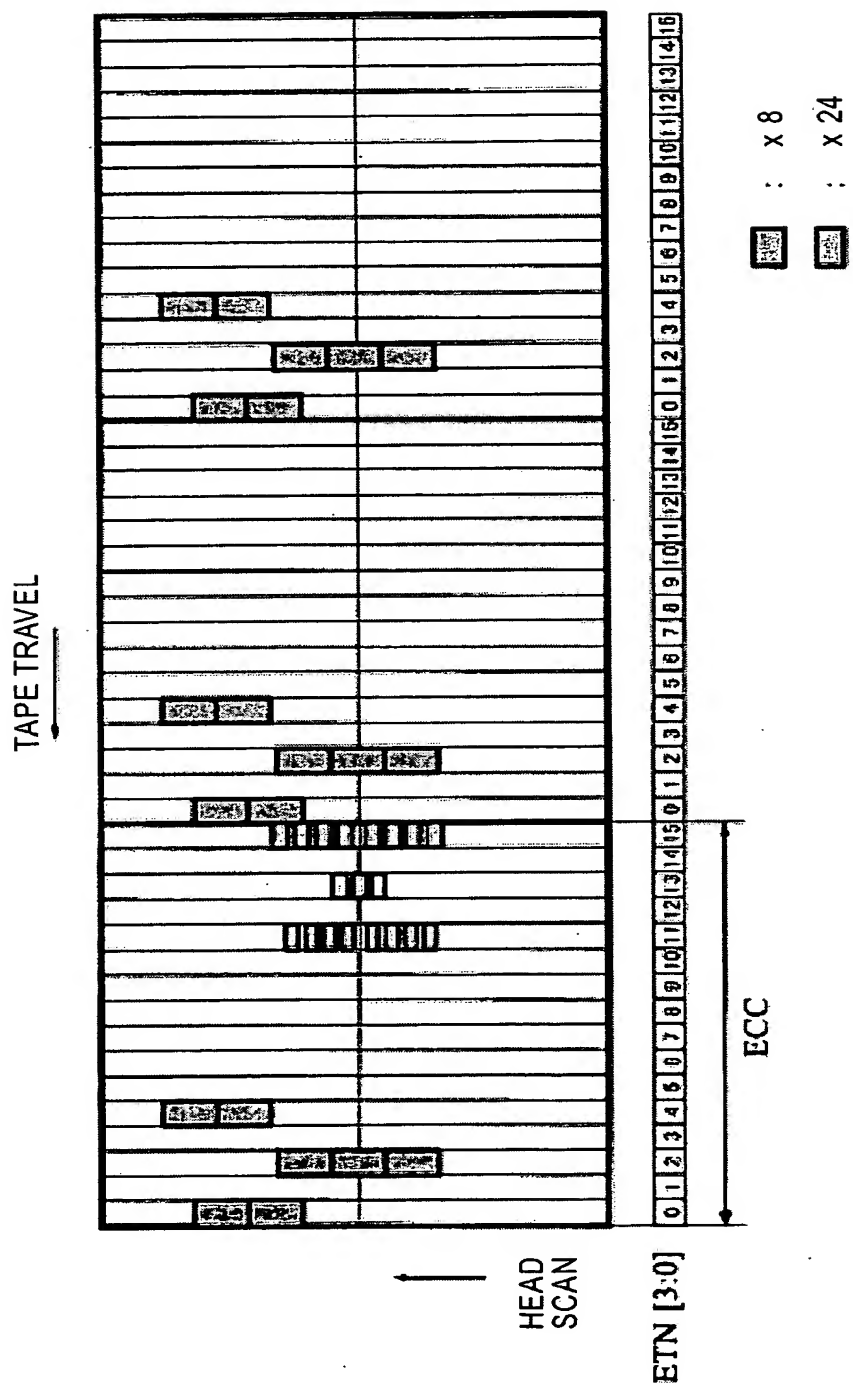
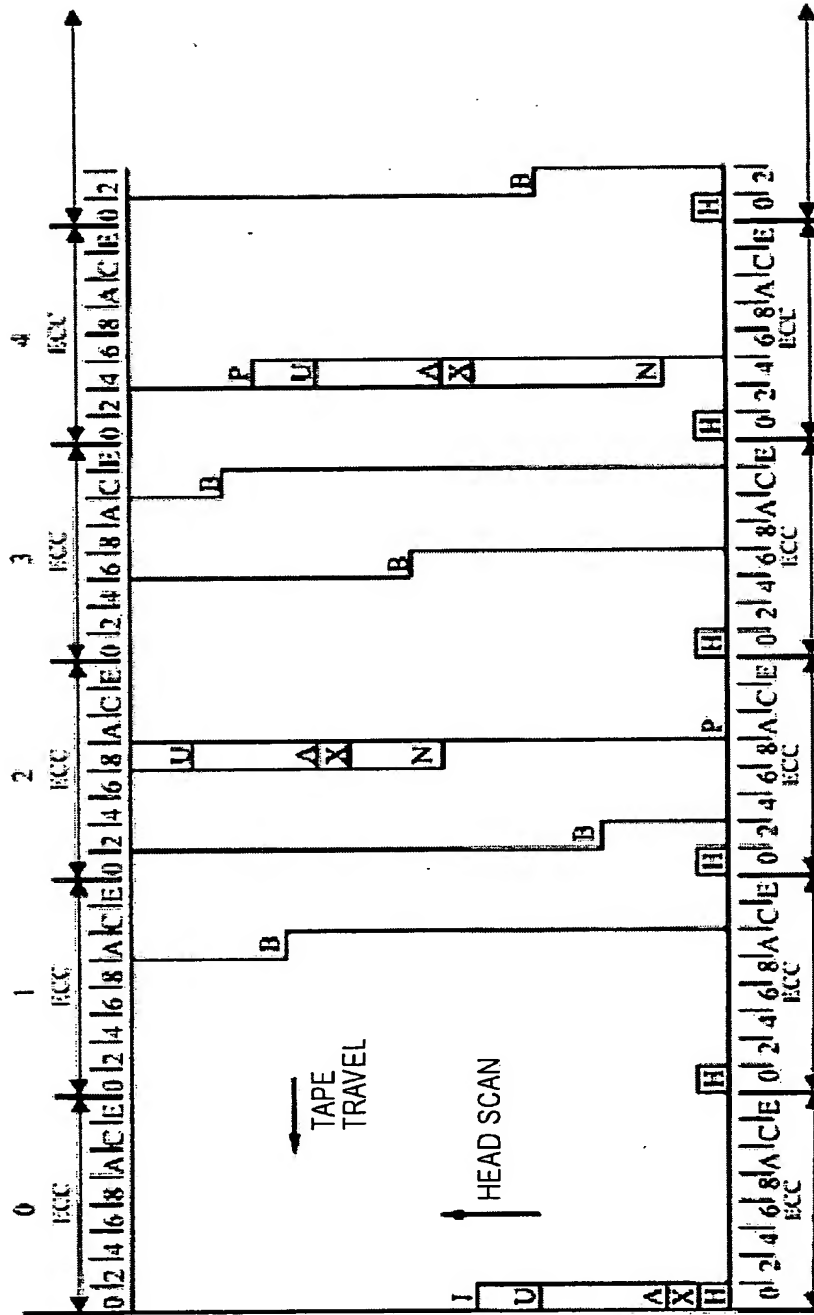


FIG. 31



I	I-PICTURE HEADER (START OF I-PICTURE DATA)
B	B-PICTURE HEADER (START OF B-PICTURE DATA)
P	P-PICTURE HEADER (START OF P-PICTURE DATA)
A	AUDIO DATA; CONCENTRATEDLY RECORDED FOR EACH EDIT
U	VIDEO AUX DATA; CONCENTRATEDLY RECORDED FOR EACH EDIT
X	AUDIO AUX DATA; CONCENTRATEDLY RECORDED FOR EACH EDIT
N	NULL
H	AUX DATA DISPOSED FOR EACH ECC (ECCTB PACKET)

FIG. 33

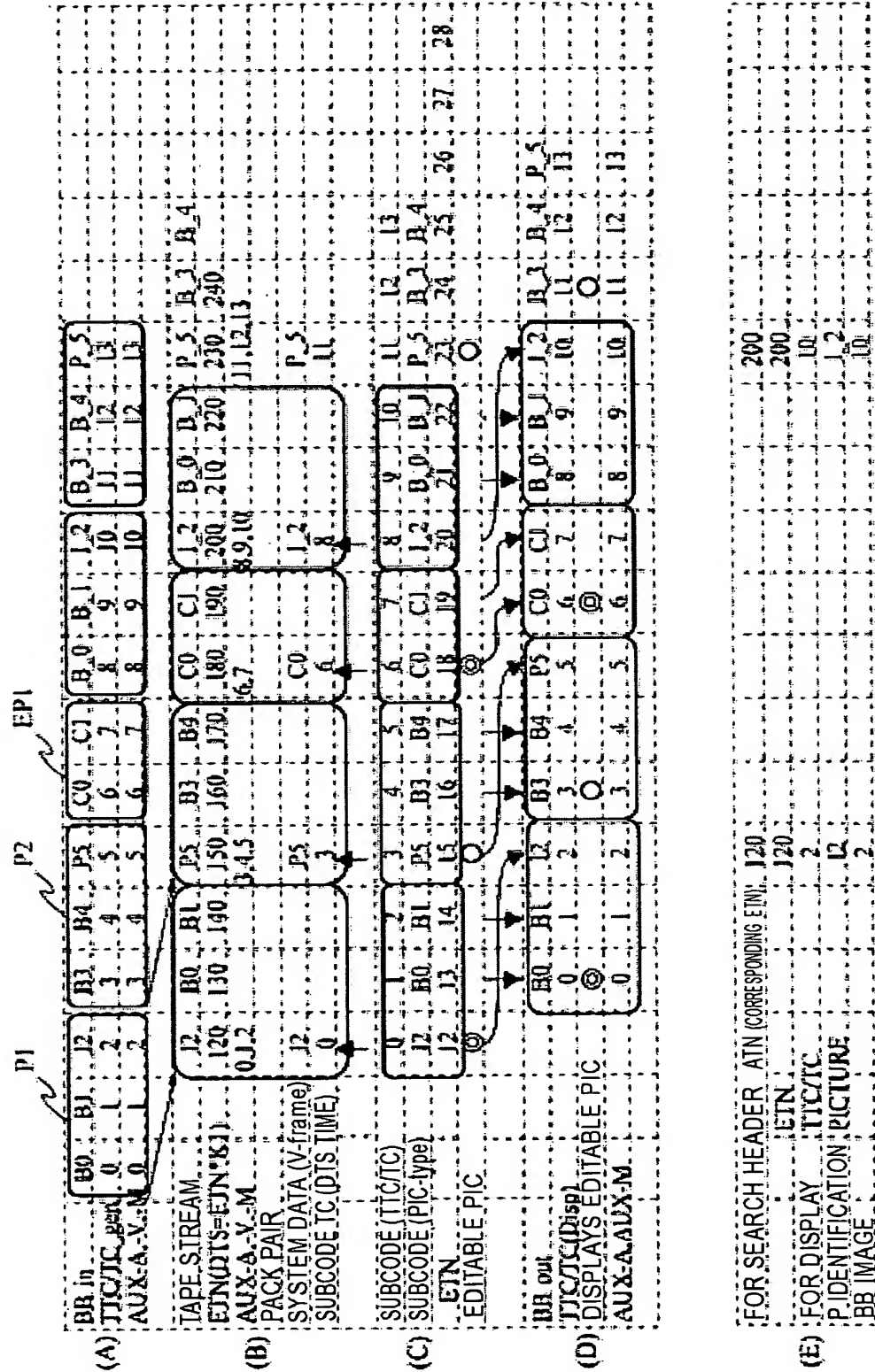
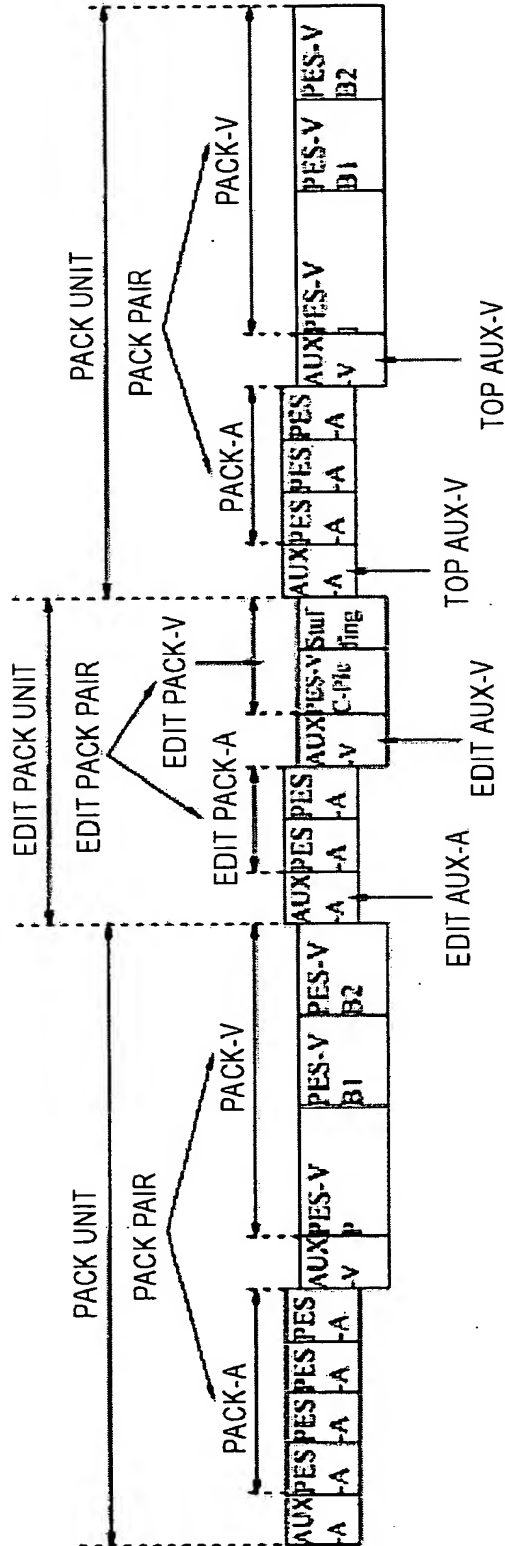


FIG. 34



COMBINING UNIT	PACK	EDIT POINT AUX-A	EDIT AUX-A	EDIT AUX-A
COMBINING UNIT PAIR	PACK PAIR	EDIT POINT AUX-V	EDIT POINT AUX-V	EDIT AUX-V
COMBINING UNIT AUDIO	PACK-A	AUDIO IMMEDIATELY FOLLOWING EDIT POINT	AUDIO IMMEDIATELY FOLLOWING EDIT POINT	TOP PACK-A
COMBINING UNIT VIDEO	PACK-V	AUX-A IMMEDIATELY FOLLOWING EDIT POINT	AUX-A IMMEDIATELY FOLLOWING EDIT POINT	TOP AUX-A
EDIT POINT COMBINING UNIT	EDIT PACK	AUX-V IMMEDIATELY FOLLOWING EDIT POINT	AUX-V IMMEDIATELY FOLLOWING EDIT POINT	TOP AUX-V
EDIT POINT COMBINING UNIT PAIR	EDIT PACK PAIR	EDIT POINT INSERTION UNIT	EDIT POINT INSERTION UNIT	EDIT PACK UNIT
EDIT POINT COMBINING UNIT AUDIO	EDIT PACK-A	EDIT UNIT	EDIT UNIT	PACK UNIT
EDIT POINT COMBINING UNIT VIDEO	EDIT PACK-V			

FIG. 35

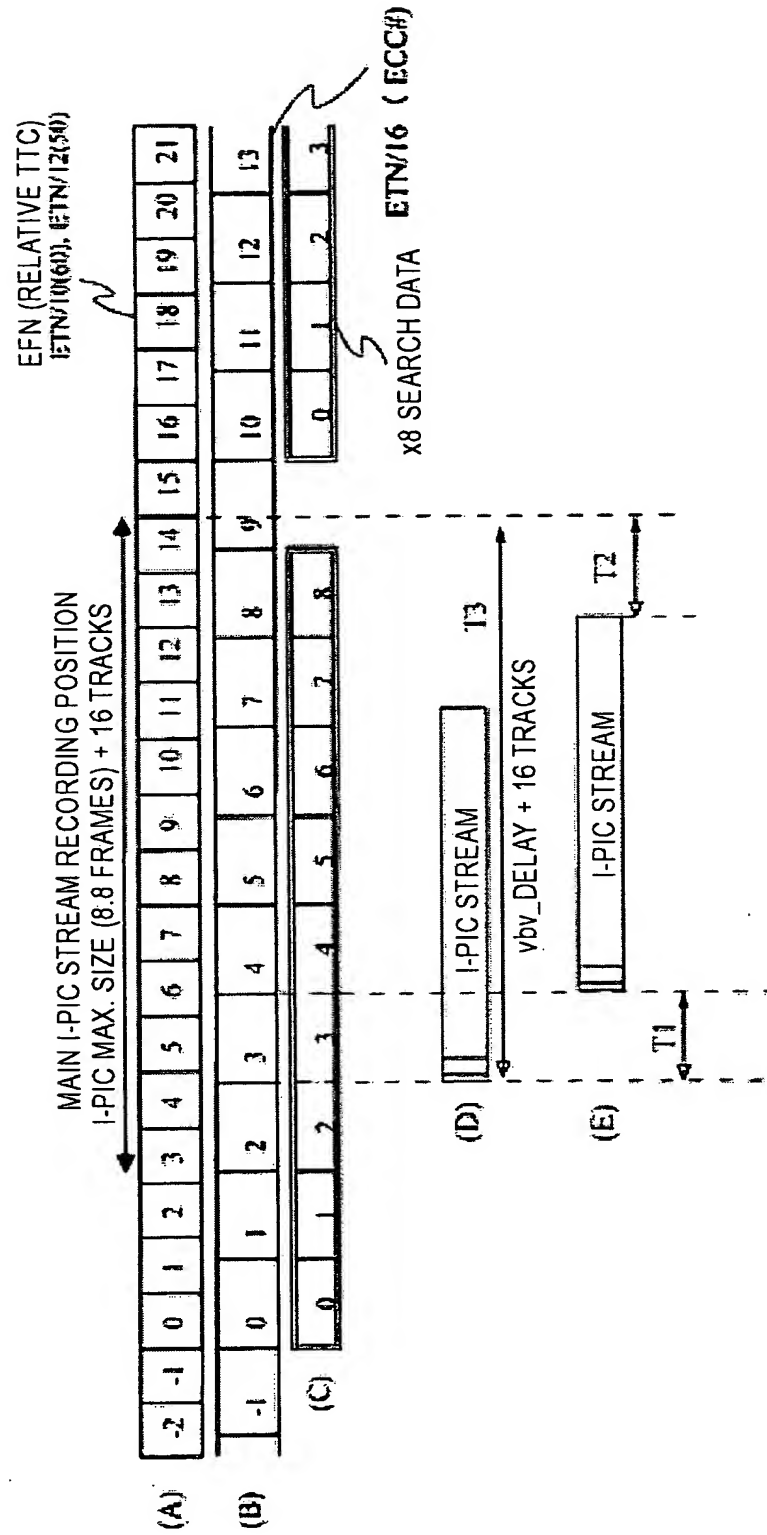
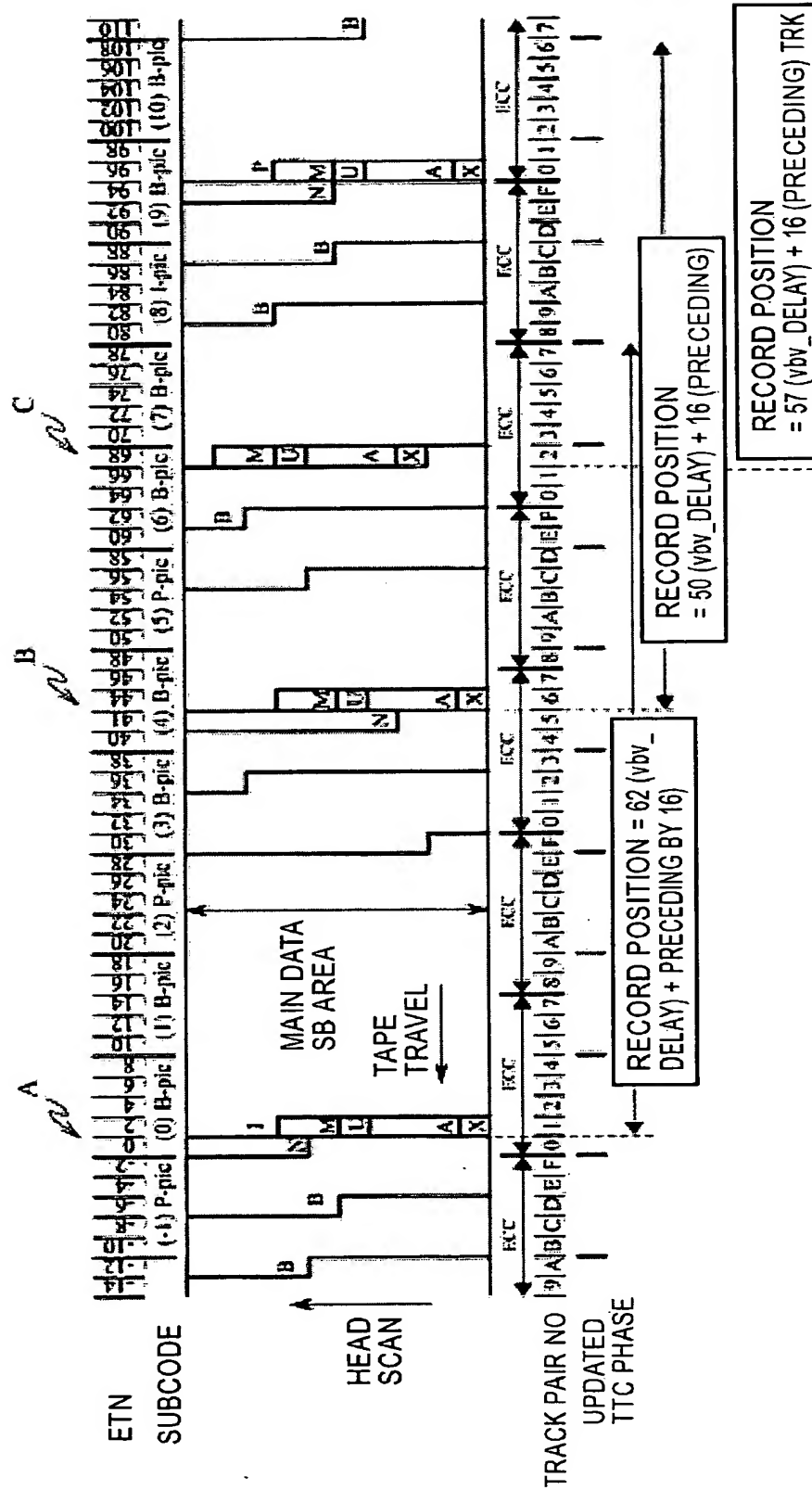


FIG. 36



27 / 32

FIG. 37

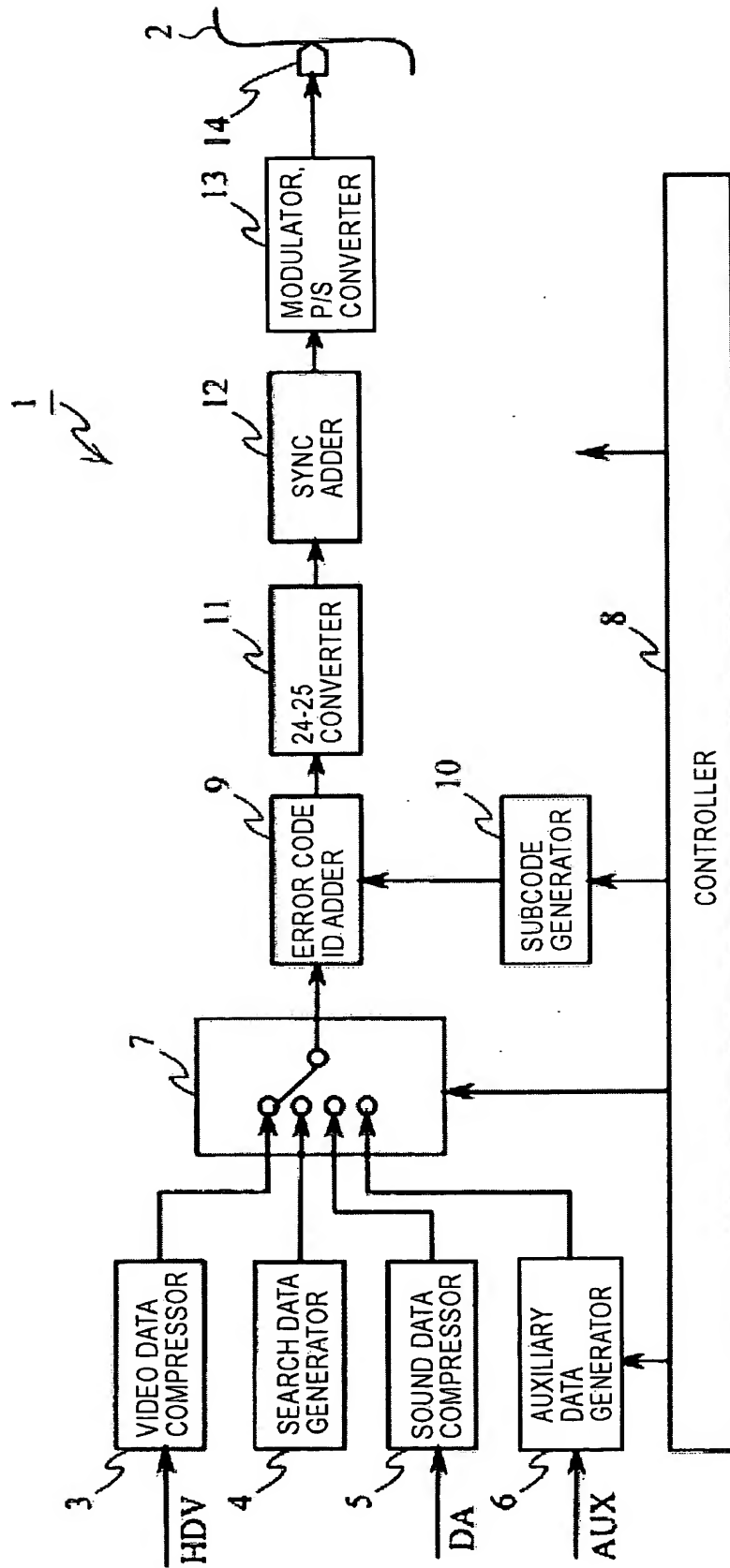
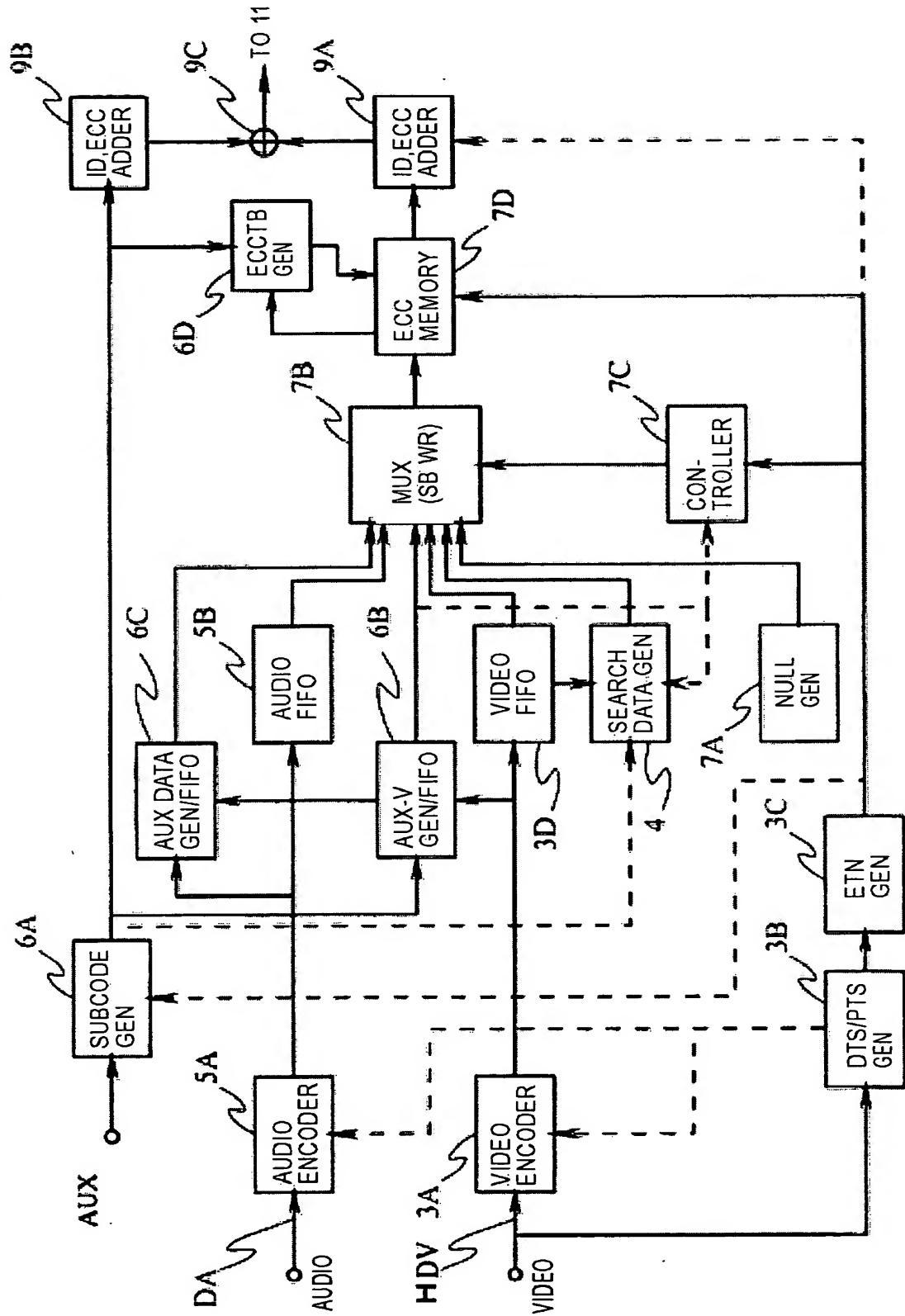
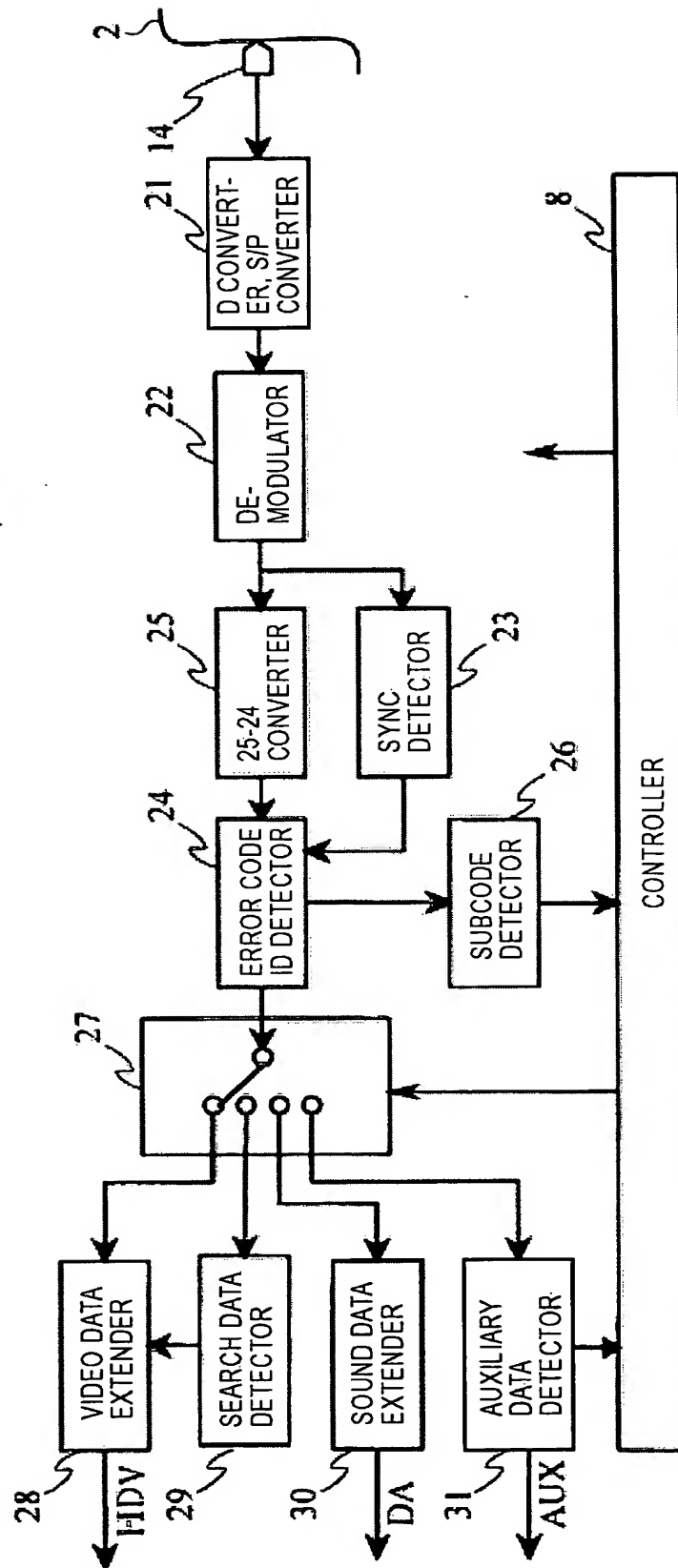


FIG. 38



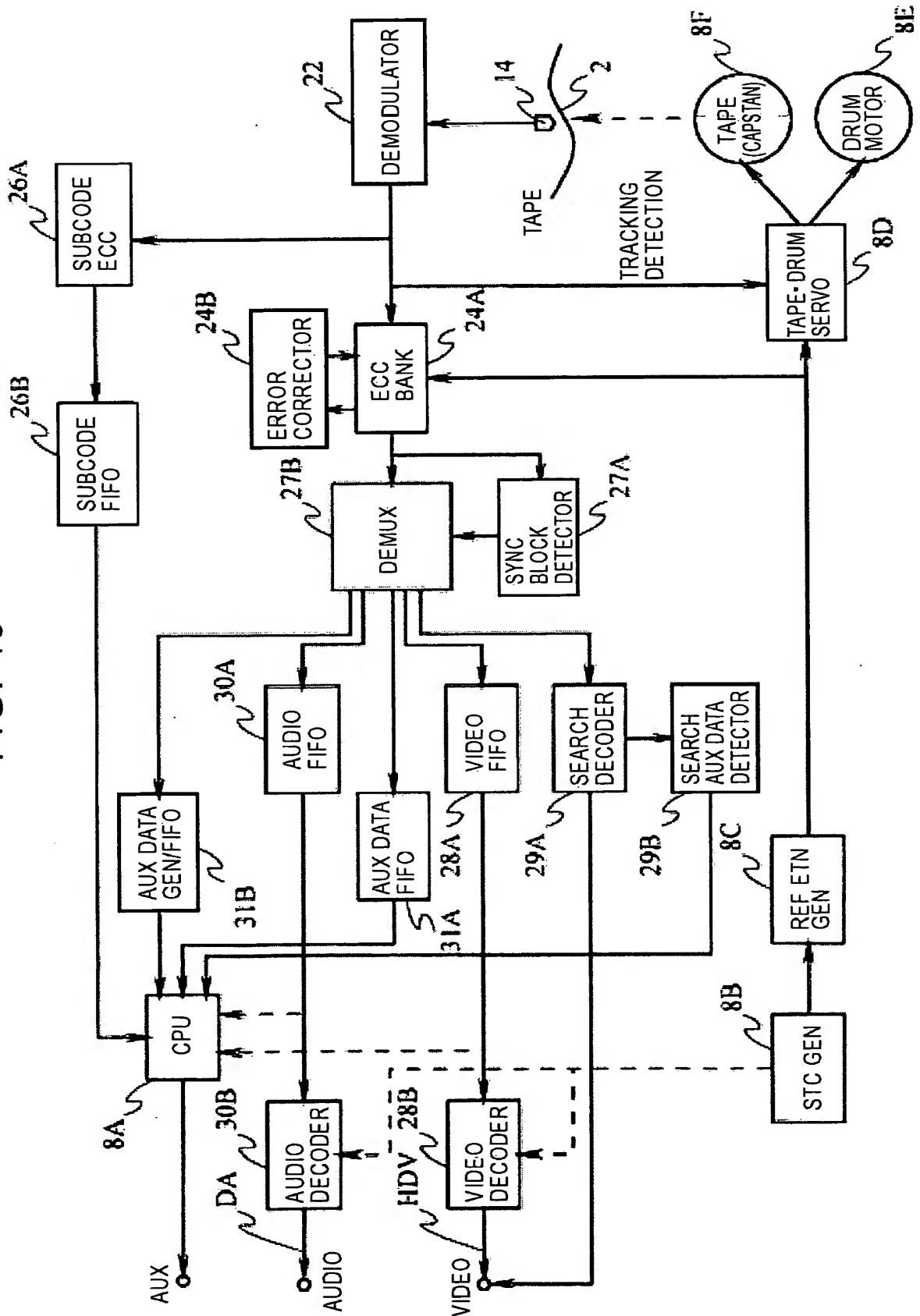
29 / 32

FIG. 39



30/32

FIG. 40



REFERENCE NUMERALS

1: VIDEO TAPE RECORDER
2: MAGNETIC TAPE
3: VIDEO DATA COMPRESSOR
3A: VIDEO ENCODER
3B: DTS/PTS GENERATOR
3C: ETN GENERATOR
3D, 28A: VIDEO FIFO
4: SEARCH DATA GENERATOR
5: SOUND DATA COMPRESSOR
5A: AUDIO ENCODER
5B, 30A: AUDIO FIFO
6: AUXILIARY DATA GENERATOR
6A: SUBCODE GENERATING CIRCUIT
6B: VIDEO AUXILIARY DATA GENERATING CIRCUIT
6C: AUDIO AUXILIARY DATA GENERATING CIRCUIT
6D: ECCTB GENERATOR
7: MULTIPLEXING CIRCUIT
7A: NULL GENERATOR
7B: MULTIPLEXER
7C: CONTROLLER
7D: ECC MEMORY
8: CONTROLLER
8A: CENTRAL PROCESSING UNIT
8B: SYSTEM TIME CLOCK STC GENERATOR
8C: REFERENCE ETN GENERATOR
8D: TAPE DRUM SERVO CIRCUIT
8E: DRUM MOTOR
8F: CAPSTAN MOTOR
9: ERROR CODE ID ADDER
9A, 9B: ID, ECC ADDING CIRCUIT
9C: ADDING CIRCUIT
10: SUBCODE GENERATOR
11: 24-25 CONVERTER
12: SYNC ADDING CIRCUIT
13: MODULATOR, P/S CONVERTER
14: MAGNETIC HEAD
21: DIGITAL CONVERTER, S/P CONVERTER
22: DEMODULATOR
23: SYNC DETECTOR
24: ERROR CORRECTION ID DETECTOR
24A: ECC BANK
24B: ERROR CORRECTION
25: 25-24 CONVERTER
26: SUBCODE DETECTOR
26A: SUBCODE ECC
26B: SUBCODE FIFO
27: SEPARATING CIRCUIT
27A: SB DETECTING CIRCUIT
27B: DEMULTIPLEXER
28: VIDEO DATA EXTENDER
28B: VIDEO DECODER

32 / 32

29: SEARCH DATA DETECTOR
29A: SEARCH DECODER
29B: SEARCH AUXILIARY DATA DETECTING CIRCUIT
30: SOUND DATA EXTENDER
30B: AUDIO DECODER
31: AUXILIARY DATA DETECTOR
31A: AUXILIARY DATA FIFO
31B: AUXILIARY DATA GENERATOR FIFO

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